

عنوان مقاله:

NUMERICAL SOLUTION FOR LIQUEFACTION OF SAND AND STABILITY OF SHORE-WALL

محل انتشار:

سومین همایش بین المللی سواحل، بنادر و سازه های دریایی (سال: 1377)

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خلاصه مقاله:

In this paper, an incremental non-linear constitutive model capable of predicting the behavior of liquefiable sand - under cyclic loading is presented. In the absence of reliable tests conformed with real stress path, its calibration regarding mechanical characteristics during loading, unloading, and reloading is made from triaxial compression tests. The calibration of model with respect to the variation of E (elastic modulus) and ν (poisson ratio) is done through drained triaxial compression behavior of soil. It is found that the behavior is strongly dependent on these parameters with initial conditions. Accordingly, two appropriate mathematical functions capable of presenting the elastic modulus and poisson's ratio variations are proposed. The scheme of these variations are such that the hysteresis loop of energy and damping of soil are considered. . The capability of the model to predict the behavior of soil under undrained monotonic and cyclic conditions has been examined. It is found that the proposed model can describe the behavior of sand under various stress conditions. This simple quasi-elastic model, although, requiring few parameters, nevertheless is strongly powerful to cope with cyclic behavior of soil. The built up pore water pressure in undrained condition of soil samples, under cyclic loading predicted and tally conformed with natural soil condition while is liquefied. The applicability of proposed model was examined by predicting the instability of a shore-wall under cyclic loads built up through waves. Upon these circumstances the zone most probably may be liquefied is obtained and presented. The solution of this boundary value problem and presented results have shown the model applicability .in predicting instability and liquefaction of sandy layers in foundation and backfill of shore-wall

کلمات کلیدی:

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